sample is contracted out to a commercial laboratory, the Discharger shall ensure that the San Diego Water Board is notified and the first of four accelerated monitoring tests is initiated within five calendar days of the Discharger becoming aware of the result.

The accelerated monitoring schedule shall consist of four toxicity tests, conducted at approximately two-week intervals, over an eight-week period, in preparation for the TRE process and associated reporting. If each of the accelerated toxicity tests results in "Pass," the Discharger shall return to routine monitoring for the next monitoring period. If one of the accelerated toxicity tests results in "Fail," the Discharger shall immediately implement the TRE Process conditions set forth below. During accelerated monitoring schedules, only TST results ("Pass" or "Fail") for chronic toxicity tests shall be reported as effluent compliance monitoring results for the chronic toxicity MDEL.

8. TRE Process

During the TRE Process, monthly effluent monitoring shall resume and TST results ("Pass" or "Fail" and "Percent Effect") for chronic toxicity tests shall be reported as effluent compliance monitoring results for the chronic toxicity MDEL.

a. Preparation and Implementation of Specific TRE Work Plan. The Discharger shall immediately initiate a TRE using, according to the type of treatment facility, U.S. EPA manual *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations* (EPA/600/2-88/070, 1989) and, within 15 days of receiving validated results, submit to the San Diego Water Board a Specific TRE Work Plan, which shall follow the Initial Investigation TRE Work Plan revised as appropriate for this toxicity event. It shall include the following information, and comply with additional conditions set by the San Diego Water Board:

i. Further actions by the Discharger to investigate, identify, and correct the causes of toxicity;

ii. Actions the Discharger will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and

iii. A schedule for these actions, progress reports, and the final report.

b. The Discharger may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and test method and, as guidance, U.S. EPA manuals: *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures* (EPA/600/6-91/003, 1991); *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, 1993); *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/081, 1993); and *Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document* (EPA/600/R-96-054, 1996). The TIE should be conducted on the species demonstrating the most sensitive toxicity response.

c. Many recommended TRE elements are parallel to required or recommended efforts for source control, pollution prevention, and storm water control programs. TRE efforts should be coordinated with such efforts. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the sources of toxicity and evaluating strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with toxicity evaluation parameters.

d. The Discharger shall continue to conduct routine effluent monitoring for compliance determination purposes while the TRE and/or TIE process is taking place. Additional accelerated monitoring and TRE Work Plans are not required once a TRE is begun.

e. The San Diego Water Board recognizes that toxicity may be episodic and identification of causes and reduction of sources of toxicity may not be successful in all cases. The TRE may be ended at any stage if routine monitoring finds there is no longer toxicity.

f. The San Diego Water Board may consider the results of any TRE/TIE studies in an enforcement action.

9. Toxicity Reporting

The self-monitoring report (SMR) shall include a full laboratory report for each toxicity test. This report shall be prepared using the format and content of the test methods manual chapter titled "Report Preparation", and shall include:

a. The valid toxicity test results for the TST statistical approach, reported as "Pass" or "Fail" and "Percent Effect" at the chronic toxicity IWC for the discharge. All toxicity test results (whether identified as valid or otherwise) conducted during the calendar month shall be reported on the SMR due date specified in Table E-11.

b. Summary water quality measurements for each toxicity test (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, chlorine, ammonia).

c. The statistical analysis used in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010) Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1.

d. TRE/TIE results. The San Diego Water Board shall be notified no later than 30 days from completion of each aspect of the TRE/TIE analyses. Prior to the completion of the final TRE/TIE report, the Discharger shall provide status updates in the monthly monitoring reports, indicating which TRE/TIE steps are underway, which steps have been completed, and the estimated time to completion of the final TRE/TIE report. The final TRE/TIE report shall be submitted to the San Diego Water Board within 30 days of report completion.

e. Statistical program (e.g., TST calculator, CETIS, etc.) output results, including graphical plots, for each toxicity test.

f. Graphical plots clearly showing the laboratory's performance for the reference toxicant for the previous 20 tests and the laboratory's performance for the control mean, control standard deviation, and control coefficient of variation for the previous 12-month period.

g. Any additional quality assurance/quality control (QA/QC) documentation or any additional chronic toxicity-related information, upon written request from the San Diego Water Board.

D. Land Discharge Monitoring Requirements – Not Applicable

E. Recycling Monitoring Requirements – Not Applicable

IV. RECEIVING WATER MONITORING REQUIREMENTS

The receiving water and sediment monitoring requirements set forth below are designed to measure the effects of the Facility's discharge on the receiving ocean waters, including potential effects on coastal water quality and marine life. The overall receiving water monitoring program is intended to answer the following questions:

- Does the receiving water meet water quality standards?
- Are the receiving water conditions getting better or worse over time?
- What is the relative contribution of the Facility's discharge to pollution in the receiving water?
- What are the effects of the discharge on the receiving waters?

Receiving water and sediment monitoring shall be conducted as specified below. This program is intended to document conditions within the brine mixing zone (BMZ) and the zone of initial dilution (ZID), at reference stations, and at areas beyond the ZID where discharge impacts might be reasonably expected. Station location, sampling, sample preservation, and analyses, when not specified, shall be by methods approved by the San Diego Water Board. The monitoring program may be modified by the San Diego Water Board at any time. The Discharger may also submit a list with rationale for any proposed changes to these monitoring requirements that the Discharger considers to be appropriate to the San Diego Water Board for approval.

During monitoring events, sample stations shall be located using a land-based microwave positioning system or a satellite positioning system such as a global positioning system. If an alternate navigation system is proposed, its accuracy shall be compared to that of microwave and satellite-based systems, and any compromises in accuracy shall be justified.

A. Surf Zone Water Quality Monitoring Requirements

As ocean surface waves come closer to shore they break, forming the foamy, bubbly surface called surf. The region of breaking waves defines the surf zone.

Monitoring of the surf zone is intended to answer the following questions:

- Does the effluent cause or contribute to an exceedance of the water quality standards in the receiving water?

Surf zone stations (listed in Table E-1) shall be monitored as follows:

Table E-7. Surf Zone Monitoring Requirements

Parameter	Units	Sample Type	Sampling Stations	Sampling Frequency
Visual Observations	--	Visual	A-00 and A-50 through A-100	[1]
Temperature	°F	Grab	A-00 and A-50 through A-100	1/Quarter
pH	s.u.	Grab	A-00 and A-50 through A-100	1/Quarter
Dissolved Oxygen	mg/L	Grab	A-00 and A-50 through A-100	1/Quarter
Salinity	ppt	Grab	A-00 and A-50 through A-100	1/Quarter

[1] Visual observations of the surface water conditions at the designated receiving water stations shall be conducted in such a manner as to enable the observer to describe and report the presence, if any, of floatables. Observations of wind (direction and speed), weather (cloudy, sunny, or rainy), direction of current, tidal conditions (high or low), water color, discoloration, oil and grease, turbidity, and odor shall be recorded. These observations shall be taken whenever a sample is collected. Visual observations shall also be conducted for repeat sampling.

1. **Sample Station Omission Due to Storm Condition.** In the event of stormy weather which makes sampling hazardous at certain surf zone stations, collection of samples at

such stations can be omitted, provided that such omissions do not occur more than five times in any calendar year or occur at consecutive sampling times. The visual observations listed in footnote no. 1 to Table E-7 shall still be recorded and reported to the San Diego Water Board in the quarterly and semiannual reports. If practicable, an effort should be made to return to the sampling station that was omitted and collect the sample during calmer conditions within the same reporting period.

B. Offshore Water Quality Monitoring Requirements

Offshore monitoring is necessary to answer the following questions:

- Does the discharge cause an increase in salinity of >2.0 ppt above ambient conditions?
- Is the wastewater plume adversely impacting receiving water areas used for swimming, surfing, diving, and shellfish harvesting?
- Is natural light significantly reduced at any point outside the ZID as a result of the discharge?
- Does the discharge cause a discoloration of the ocean surface?
- Does the discharge of oxygen demanding waste cause the dissolved oxygen concentration to be depressed at any time more than 10 percent from that which occurs naturally?
- Does the discharge of waste cause the pH to change at any time more than 0.2 units from that which occurs naturally?
- What is the fate of the discharge plume?

Offshore receiving water monitoring shall be conducted at the offshore monitoring stations (listed in Table E-1) as follows:

Table E-8. Offshore Monitoring Requirements

Parameter	Units	Sampling Stations	Sample Type	Sampling Frequency
Visual Observations[1]	--	A-00, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Visual	1/Quarter
Salinity	ppt	A-00, A-50 through A-90, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Continuous Profile[2]	1/Quarter
Temperature	°F	A-00, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Continuous Profile[2]	1/Quarter
pH	s.u.	A-00, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Continuous Profile[2]	1/Quarter
Dissolved Oxygen	mg/L	A-00, B-00, B-10 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Continuous Profile[2]	1/Quarter
Light Transmittance	Percent	A-10 through A-30, B-00 through B-40, C-10 through C-30, D-10 through D-50, E-10 through E-30	Continuous Profile[2]	1/Quarter

[1] Visual observations of the surface water conditions at the designated receiving water stations shall be conducted in such a manner as to enable the observer to describe and report the presence, if any, of floatables. Observations of wind (direction and speed), weather (cloudy, sunny, or rainy), direction of

current, tidal conditions (high or low), water color, oil and grease, turbidity, and odor shall be recorded. These observations shall be taken whenever a sample is collected.

[2] Temperature, depth, salinity, dissolved oxygen, light transmittance, and pH profile data shall be measured throughout the entire water column using a conductivity, temperature, and depth (CTD) profiler during the quarterly sampling events. Depth profile measurements shall be obtained using multiple sensors to measure parameters through the entire water column (from the surface to as close to the bottom as practicable).

C. Benthic Monitoring Requirements

Seafloor sediments integrate constituents that are discharged to the ocean. Most particles that come from the Facility's discharge, and any associated contaminants, will eventually settle to the seafloor where they are incorporated into the existing sediments. Sediments can accumulate these particles over the years until the point where sediment quality is degraded and beneficial uses are impaired.

Benthic organisms are strongly affected by sediment contaminant exposure because these organisms often live in continual direct contact with sediment/pore water, and many species ingest significant quantities of sediment as a source of nutrition. Because the benthos are dependent on their surroundings, they serve as a biological indicator that reflects the overall conditions of the aquatic environment. Seafloor sediment monitoring is intended to answer the following questions:

- Is the concentration of substances set forth in Table 1 of the Ocean Plan, for the protection of marine aquatic life in marine sediments, at levels which would degrade the benthic community?
- Is the concentration of organic pollutants in marine sediments at levels that would degrade the benthic community?
- Are benthic communities degraded as a result of the discharge?
- Is the sediment quality changing over time?

The assessment of sediment quality to evaluate potential effects of the Facility discharge and compliance with narrative water quality standards specified in the Ocean Plan consist of the measurement and integration of three lines of evidence: 1) physical and chemical properties of seafloor sediments, 2) seafloor sediment toxicity to assess bioavailability and toxicity of sediment contaminants, and 3) ecological status of the biological communities (benthos) that live in or on the seafloor sediments.

1. Sediment Assessment for Physical and Chemical Properties

a. Sediment Sampling Stations and Monitoring Frequency. The sediment monitoring program is designed to assess spatial and temporal trends in sediment quality and to assess benthic habitat condition in terms of physical and chemical composition (e.g., grain-size distribution, sediment chemistry). Sediment samples for assessment of sediment chemistry shall be collected on a biannual basis at the monitoring stations specified in the Benthic Monitoring Work Plan required in section IV.C.4 below.

b. Sediment Sample Collection Methods. Sediment samples shall be taken using a 0.1-square meter modified Van Veen grab sampler. Samples for grain-size and chemical analyses shall be taken from the top two centimeters of the surface sediment. Sediment samples for physical and chemical properties shall be taken concurrently with and adjacent to (as much as possible) the sediment samples for

benthic community condition. Bulk sediment chemical analysis shall include at a minimum the set of constituents listed in Table E-9 below.

c. **Sediment Chemistry Test Methods**. Sediment chemistry is the measurement of the concentration of chemicals of concern in sediments. The chemistry line of evidence is used to assess the potential overall exposure risk to benthic organisms from pollutants in surficial sediments. Chemical analysis of sediment shall be conducted using USEPA approved methods, methods developed by the National Oceanic and Atmospheric Administration's (NOAA's) National Status and Trends for Marine Environmental Quality, or methods developed in conjunction with the Southern California Bight Regional Monitoring Program. For chemical analysis of sediment, samples shall be reported on a dry weight basis.

d. Sediment monitoring for physical and chemical properties shall be conducted at monitoring stations specified in the Benthic Monitoring Work Plan as follows:

Table E-9. Sediment Monitoring Requirements

Parameter	Units	Type of Sample	Sampling Frequency
Acid Volatile Sulfides	Milligram/kilogram (mg/kg)	Grab	1 / Two Years
Total Organic Carbon	percent	Grab	1 / Two Years
Total Chlorinated Hydrocarbons	mg/kg	Grab	1 / Two Years
Particle Size Distribution	micrometer (µm)	Grab	1 / Two Years
Arsenic	mg/kg	Grab	1 / Two Years
Cadmium	mg/kg	Grab	1 / Two Years
Total Chromium	mg/kg	Grab	1 / Two Years
Copper	mg/kg	Grab	1 / Two Years
Lead	mg/kg	Grab	1 / Two Years
Mercury	mg/kg	Grab	1 / Two Years
Nickel	mg/kg	Grab	1 / Two Years
Silver	mg/kg	Grab	1 / Two Years
Zinc	mg/kg	Grab	1 / Two Years
Cyanide	mg/kg	Grab	1 / Two Years
Phenolic Compounds	mg/kg	Grab	1 / Two Years
PCBs	ng/kg	Grab	1 / Two Years
2,4-DDD	ng/kg	Grab	1 / Two Years
4,4-DDD	ng/kg	Grab	1 / Two Years
2,4-DDE	ng/kg	Grab	1 / Two Years
4,4-DDE	ng/kg	Grab	1 / Two Years
2,4-DDT	ng/kg	Grab	1 / Two Years
4,4-DDT	ng/kg	Grab	1 / Two Years
Aldrin	ng/kg	Grab	1 / Two Years
Alpha-Chlordane	ng/kg	Grab	1 / Two Years
Dieldrin	ng/kg	Grab	1 / Two Years
Endosulfan	ng/kg	Grab	1 / Two Years
Endrin	ng/kg	Grab	1 / Two Years
Gamma-BHC	ng/kg	Grab	1 / Two Years
Heptachlor	ng/kg	Grab	1 / Two Years
Heptachlor Epoxide	ng/kg	Grab	1 / Two Years
Hexachlorobenzene	ng/kg	Grab	1 / Two Years
Mirex	ng/kg	Grab	1 / Two Years

Parameter	Units	Type of Sample	Sampling Frequency
Trans-Nonachlor	ng/kg	Grab	1 / Two Years
Acenapthene	µg/kg	Grab	1 / Two Years
Acenaphthylene	µg/kg	Grab	1 / Two Years
Anthracene	µg/kg	Grab	1 / Two Years
Benzo(a)anthracene	µg/kg	Grab	1 / Two Years
Benzo(o)fluoranthene	µg/kg	Grab	1 / Two Years
Benzo(k)fluoranthene	µg/kg	Grab	1 / Two Years
Benzo(ghi)pyrelene	µg/kg	Grab	1 / Two Years
Benzo(a)pyrene	µg/kg	Grab	1 / Two Years
Benzo(e)pyrene	µg/kg	Grab	1 / Two Years
Biphenyl	µg/kg	Grab	1 / Two Years
Chrysene	µg/kg	Grab	1 / Two Years
Dibenz(ah)anthraces	µg/kg	Grab	1 / Two Years
Fluoranthene	µg/kg	Grab	1 / Two Years
Fluorene	µg/kg	Grab	1 / Two Years
Ideno(123cd)pyrene	µg/kg	Grab	1 / Two Years
Naphthalene	µg/kg	Grab	1 / Two Years
1-Methylnaphthalene	µg/kg	Grab	1 / Two Years
2-Methylnaphthalene	µg/kg	Grab	1 / Two Years
2,6-Dimethylnaphthalene	µg/kg	Grab	1 / Two Years
2,3,5-Trimethylnaphthale	µg/kg	Grab	1 / Two Years
Perylene	µg/kg	Grab	1 / Two Years
Phenanthrene	µg/kg	Grab	1 / Two Years
1-Methylphenanthene	µg/kg	Grab	1 / Two Years
Pyrene	µg/kg	Grab	1 / Two Years

2. **Sediment Toxicity**

   a. **Toxicity Sampling Stations and Frequency.** Sediment toxicity is a measure of the response of invertebrates exposed to surficial sediments under controlled laboratory conditions. The sediment toxicity line of evidence is used to assess both pollutant-related biological effects and exposure. Sediment samples for assessment of toxicity shall be monitored every other year at the monitoring stations specified in the Sediment Monitoring Work Plan.

   b. **Sediment Toxicity Collection Methods.** Sediment samples shall be taken using a 0.1-square meter modified Van Veen grab sampler. Samples for toxicity analyses shall be taken from the top two centimeters of the surface sediment. Sediment samples for toxicity shall be taken concurrently with and adjacent to (as much as possible) the sediment samples for physical and chemical properties, and benthic community condition.

   c. **Sediment Toxicity Test Methods**. Sediment toxicity tests shall utilize alternative amphipod species (Eohaustorius estuaries, Leptocheirus plumulosus, Rhepoxynius abronius) and be conducted in accordance with EPA 600/R-94/0925 (USEPA, 1994), Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods, and the Southern California Bight Project sediment toxicity testing guidelines (Bight'13 Toxicology Committee, 2013)[1].

[1] The Southern California Bight Project's Toxicology Laboratory Manual is located at this website as of November 29, 2018: http://www.sccwrp.org/Documents/BightDocuments/Bight18Documents/Bight18PlanningDocuments.aspx

Response criteria shall include mortality, emergence from sediment during exposure, and ability to rebury in clean sediment at the end of the 10-day exposure period. Results shall be reported as "pass"/"fail" and percent response.

d. **Data Analysis**. Analysis of sediment toxicity shall include a calculation of the mean control normalized response.

3. **Benthic Community Condition**

a. **Benthic Community Sampling Stations and Frequency**. Samples for assessment of benthic community structure shall be collected every other year at monitoring stations specified in the Benthic Monitoring Work Plan. One sample per station shall be collected for analysis of benthic community structure. Monitoring shall be conducted as follows:

Table E-10. Infauna Monitoring Requirements

Parameter	Units	Sample Type	Sampling Frequency
Benthic Biota	Identification and enumeration	Grab	1 / Two Years

b. **Benthic Community Sample Collection Methods**. Benthic community samples shall be collected using the guidance specified in the most recent field manual developed for the Southern California Bight Regional Monitoring Program[2]. The benthic samples shall be collected using a 0.1-square meter modified Van Veen grab sampler. These grab samples shall be separate from (but adjacent to as much as possible) samples collected for sediment grain-size and chemistry. Benthic community samples shall be processed in accordance with the most recent Macrobenthic (Infaunal) Sample Analysis Laboratory Manual developed for the Southern California Bight Regional Monitoring Program[3]. The samples shall be sieved using a 1.0-millimeter mesh screen. The benthic organisms retained on the sieve shall be fixed in 10 percent buffered formalin, and transferred to at least 70 percent ethanol within two to five days of storage. All benthic invertebrates in the screened sample shall be identified to the lowest possible taxon, enumerated (counted), measured, and, where feasible, assessed for reproductive condition.

c. **Benthic Community Analysis**. Analysis of benthic community structure shall include determination of the number of species, number of individuals per species, and total numerical abundance present. The following parameters or metrics shall be calculated for each 0.1-square meter grab sample and summarized by station, as appropriate:

i. Number of species;

ii. Total numerical abundance;

iii. Benthic Response Index (BRI);

iv. Swartz's 75 percent dominance index;

v. Shannon-Weiner's diversity index (H); and

vi. Pielou evenness index (J)

[2] The most recent field manual for the Southern California Bight Regional Monitoring Program as of November 29, 2018 is located at this website: http://ftp.sccwrp.org/pub/download/DOCUMENTS/BightPlanningDocuments/Bight13/B13_Field_Manual.pdf

[3] The most recent Macrobenthic (Infaunal) Sample Analysis Laboratory Manual developed for the Southern California Bight Regional Monitoring Program as of November 29, 2018 is located at this website: http://ftp.sccwrp.org/pub/download/DOCUMENTS/BightPlanningDocuments/Bight13/B13_BenthicLabManual.pdf

4. Benthic Monitoring Work Plan

The Discharger shall submit to the San Diego Water Board within 180 days after the effective date of this Order, a Benthic Monitoring Work Plan to implement the ongoing benthic monitoring program in section IV.C.1 through 3 above. The Work Plan shall include the following elements:

a. A Quality Assurance Project Plan (QAPP) describing the project objectives and organization, functional activities, and quality assurance/quality control protocols;

b. Protocols for sediment sample collection and processing;

c. Proposed methods for analyzing sediment data and integrating the three lines of evidence (i.e., sediment physical and chemical properties, sediment toxicity, and benthic community condition);

d. Proposed triad monitoring station locations that are spatially representative of the sediment within the discharge field of influence and designated through a conceptual model that identifies the physical and chemical factors that control the fate and transport of pollutants and receptors that could be exposed to pollutants in the water and sediment including but not limited to 1) points of discharge; 2) tidal flows and predominant currents; 3) historic or legacy conditions; 4) nearby land and marine uses; 5) beneficial uses; 6) potential receptors of concern; 7) changes in sediment grain size, salinity, water depth, and organic matter; and 8) other sources or discharges in the immediate vicinity; and

e. Schedule for completion of sample collection and submission of the results. Benthic (sediment quality) monitoring shall occur on a biannual basis.

The Discharger shall implement the Benthic Monitoring Work Plan sixty (60) days after submission of the Work Plan, unless otherwise directed in writing by the San Diego Water Board. The Discharger shall modify the Work Plan as necessary to comply with any conditions set by the San Diego Water Board.

D. Receiving Water Monitoring Report

1. **Receiving Water Monitoring Report.** The Discharger shall submit receiving water monitoring reports to the San Diego Water Board annually.

   a. The Receiving Water Monitoring Report shall cover the following requirements:

      i. Surf Zone and Offshore Water Quality (sections IV.A and IV.B of this MRP);

      ii. Sediment assessment for physical and chemistry properties (section IV.C.1 of this MRP and required on a biannual basis);

      iii. Sediment assessment for toxicity (section IV.C.2 of this MRP and required on a biannual basis);

      iv. Benthic community condition (section IV.C.3 of this MRP and required on a biannual basis); and

      v. Sediment data analysis integrating the three lines of evidence (i.e., sediment physical and chemical properties, sediment toxicity, and benthic community condition) (section IV.C.4 of this MRP and required on a biannual basis).

   b. The Receiving Water Monitoring Report shall include, as a minimum, the following information

i. A description of climatic and receiving water characteristics at the time of sampling (weather observations, floating debris, discoloration, wind speed and direction, swell or wave action, time of sampling, tide height, etc.);

ii. A description of sampling stations, including, if such information is available, differences unique to each station (e.g., station location, sediment grain size, distribution of bottom sediments, rocks, shell litter, calcareous worm tubes, etc.);

iii. A description of the sample collection and preservation procedures used in the survey;

iv. A description of the specific method used for laboratory analysis;

v. An in-depth discussion, evaluation (e.g., detailed statistical analyses), interpretation and tabulation of the data including interpretations and conclusions as to whether applicable receiving water limitations in this Order have been attained at each station; and

vi. An in-depth discussion addressing the questions proposed in each section of the Receiving Water Monitoring Requirements of this MRP.

2. **State of the Ocean Report**. The Discharger shall present an oral report to the San Diego Water Board summarizing the conclusions of the receiving water monitoring report. The State of the Ocean Report shall be given once no later than 180 days prior to the expiration date of this Order. If an oral report cannot be scheduled for a San Diego Water Board meeting, the San Diego Water Board may approve submission of a written State of the Ocean Report. The State of the Ocean Report shall include, at minimum, the following elements:

   a. Description of the monitoring effort completed;

   b. The status and trends of receiving water quality conditions; and

   c. Plans for future monitoring efforts.

V. REGIONAL MONITORING REQUIREMENTS

Regional ocean water monitoring provides information about the sources, fates, and effects of anthropogenic contaminants in the coastal marine environment necessary to make assessments over large areas. The large-scale assessments provided by regional monitoring describe and evaluate cumulative effects of all anthropogenic inputs and enable better decision making regarding protection of beneficial uses of ocean waters. Regional monitoring data assists in the interpretation of core monitoring studies by providing a more accurate and complete characterization of reference conditions and natural variability. Regional monitoring also leads to methods standardization and improved quality control through inter-calibration exercise. The coalitions implementing regional monitoring enable sharing of technical resources, trained personnel, and associated costs. Focusing these resources on regional issues and developing a broader understanding of pollutants effects in ocean waters enables the development of more rapid and effective response strategies. Based on all of these considerations the San Diego Water Board supports regional approaches to monitoring ocean waters.

The Discharger shall, as directed by the San Diego Water Board, participate with other regulated entities, other interested parties, and the San Diego Water Board in development and implementation of new and improved monitoring and assessment programs for ocean waters in the San Diego Region and discharges to those waters. These programs shall be developed and implemented so as to answer the following questions:

(1) What are the status and trends of conditions in ocean waters in the San Diego Region with regard to beneficial uses? For example:

a. Are fish and shellfish safe to eat?

b. Is water quality safe for swimming?

c. Are ecosystems healthy?

(2) What are the primary stressors causing or contributing to conditions of concern?

(3) What are the major sources of the stressors causing or contributing to conditions of concern?

(4) Are the actions taken to address such stressors and sources effective (i.e., environmental outcomes)?

Development and implementation of new and improved monitoring and assessment programs for ocean waters will be guided by the following:

1. The Ocean Plan;
2. San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of A Regional Monitoring Framework*;
3. San Diego Water Board staff report entitled *A Framework for Monitoring and Assessment in the San Diego Region*; and
4. Other guidance materials, as appropriate.

A. Kelp Bed Canopy Monitoring Participation Requirements

Kelp consists of a number of species of brown algae. Along the central and southern California coast, giant kelp (*Macrocystis pyrifera*) is the largest species colonizing rocky, and in some cases sandy, subtidal habitats. Giant kelp is an important component of coastal and island communities in southern California, providing food and habitat for numerous animals.

Monitoring of the kelp beds is necessary to answer the following questions:

- What is the maximum areal extent of the coastal kelp bed canopies each year?
- What is the variability of the coastal kelp bed canopy over time?
- Are coastal kelp beds disappearing? If yes, what are factors that could contribute to the disappearance?
- Are new coastal kelp beds forming? If yes, what are factors that could contribute to new kelp beds forming?

The Discharger shall participate with other southern California ocean dischargers in an annual regional survey of coastal kelp beds in the Southern California Bight. The intent of these surveys is to provide an indication of the health of these kelp beds, recognizing that the extent of kelp bed canopies may change due to a variety of influences.

Kelp beds shall be monitored by means of vertical aerial infrared photography to determine the maximum areal extent of the canopies of coastal kelp beds each year. Surveys shall be conducted as close as possible to when kelp bed canopies are at their greatest extent during the year. The entire San Diego Region coastline, from the international boundary to the San Diego Region/Santa Ana Region boundary shall be photographed on the same day.

The maximum areal extent of kelp bed canopies each year shall be compared to that observed in previous years. Any significant losses that persist for more than one year shall be investigated by divers to document benthic and understory conditions.

Annually on October 1, the Discharger shall submit to the San Diego Water Board a copy of the regional report which summarizes the data, analyses, assessment, and images produced by the surveys. The report is a joint collaboration among a few multiple ocean dischargers in the Southern California (e.g., Region 9 Kelp Survey Consortium member agencies). In addition to the kelp bed canopies, the images shall show onshore reference points, locations of all ocean outfalls and diffusers, artificial reefs, areas of known hard-bottom substrate (i.e., rocky reefs), and depth contours at intervals of 30-feet mean lower low water (MLLW). The report shall also be made available in a user-friendly format on a website that is readily available to the public.

The surveys shall be conducted on a "continuous improvement" basis, i.e., each year improvements shall be made in monitoring, analysis, assessment, and/or documentation. For example, these could include:

1. More sophisticated analysis of patterns, correlations, and cycles that may be related to the extent of kelp bed canopies; or
2. Projects to improve understanding of influences on kelp beds or of how the extent of the canopies of various kelp beds has changed since the early 20th century.

B. Southern California Bight Monitoring Program Participation Requirements

The Discharger is required to participate in the Southern California Bight Regional Monitoring Program coordinated by the Southern California Coastal Water Research Project (SCCWRP), or any other coordinator named by the San Diego Water Board, pursuant to Water Code sections 13267, 13383, and 40 CFR section 122.48. The intent of the Southern California Bight Regional Monitoring Program is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled scientific resources of the Southern California Bight.

During these coordinated sampling efforts, the Discharger's receiving water sampling and analytical effort, as defined in section IV of this MRP, may be reallocated to provide a regional assessment of the impact of the discharge of municipal wastewater to the Southern California Bight. In that event, the San Diego Water Board shall notify the Discharger in writing that the request to perform the receiving water sampling and analytical effort defined in section IV of this MRP is suspended for the duration of the reallocation. Anticipated modifications to the monitoring program will be coordinated so as to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollution sources. The level of resources in terms of sampling and analytical effort redirected from the receiving water monitoring program required under section IV of this MRP shall approximately equal the level of resources provided to implement the regional monitoring and assessment program, unless the San Diego Water Board and the Discharger agree otherwise. The specific scope and duration of the receiving water monitoring program reallocation and redirection shall be determined in writing by the San Diego Water Board in consultation with the Discharger.

VI. OTHER MONITORING REQUIREMENTS

A. Discharger Monitoring Report Quality Assurance (DMR-QA).

When requested by U.S. EPA or the San Diego Water Board, the Discharger will participate in the NPDES DMR-QA performance study. If the DMR-QA is not required the Discharger shall submit the most recent Water Pollution Performance Evaluation Study. The Discharger shall ensure that the results of the DMR-QA Study or the most recent Water Pollution Performance

Evaluation Study are submitted annually by December 31 to the State Water Resources Control Board at the following address:

State Water Resources Control Board Quality Assurance Program Officer
Office of Information Management and Analysis
State Water Resources Control Board
1001 I Street, Sacramento, CA 95814

VII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D of this Order) related to monitoring, reporting, and recordkeeping.
2. The Discharger shall report all instances of noncompliance not reported under Attachment D, Sections V.E, V.G, and V.H, of this Order at the time monitoring reports are submitted. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to be taken that will reduce, eliminate, and prevent reoccurrence of the noncompliance.

B. Self-Monitoring Report (SMR) Submittal

1. The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website at http://www.waterboards.ca.gov/water_issues/programs/ciwqs/. The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal. The SMRs shall be signed and certified in accordance with the standard provisions in Attachment D. The Discharger shall maintain sufficient staffing and resources to ensure that SMRs are complete and timely submitted. This includes provision for training and supervision of individuals on how to prepare and submit SMRs.
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through VI. The Discharger shall submit monthly, quarterly, semiannual, and annual SMRs including the results of all required monitoring using U.S. EPA approved test methods or other test methods specified in this Order. SMRs are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-11. Monitoring Periods and Reporting Schedule

Sampling Frequency/ Report Type	Monitoring Period Begins	Monitoring Period	SMR Due Date
Continuous	First day of the calendar month following the permit effective date or on permit effective date if that date is first day of the month.	All	First day of second calendar month following month of sampling.
1/Day	First day of the calendar month following the permit effective date or on permit effective date if that date is first day of the month.	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	First day of second calendar month following month of sampling.
1/Week	First Sunday of the calendar month following the permit effective date or on permit effective date if that date is on the first Sunday of the calendar month.	Sunday through Saturday	First day of second calendar month following month of sampling.
1/Month	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month.	First day of calendar month through last day of calendar month	First day of second calendar month following month of sampling.
1/Quarter	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date.	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 1 August 1 November 1 February 1
Semi-Annual	Closest of January 1 or July 1, following (or on) permit effective date.	January 1 through June 30 July 1 through December 31	August 1 February 1
Annual Receiving Water Monitoring Report[1]	January 1 following (or on) permit effective date.	January 1 through December 31	July 1
Biannual Benthic Monitoring Report	January 1 following (or on) permit effective date.	January 1 through December 31 of the following year	July 1

[1] The Annual receiving water monitoring report shall include the benthic monitoring requirements (section IV.C of Attachment E of this Order) for that year if sampled and an assessment of all receiving water monitoring data.

4. **Reporting Protocols**. The Discharger shall report with each sample result the applicable reported Minimum Level (ML, also known as the Reporting Level, or RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Compliance Determination.** Compliance with effluent limitations for reportable pollutants shall be determined using sample reporting protocols defined above and in section VII of this Order. For purposes of reporting and administrative enforcement by the San Diego Water Board and State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the reportable pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported ML.

6. **Multiple Sample Data**. When determining compliance with a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses and the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND), the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

7. The Discharger shall submit SMRs in accordance with the following requirements:

   a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the Facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify alleged violations of the Order; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

C. Discharge Monitoring Reports (DMRs)

DMRs are U.S. EPA reporting requirements. The Discharger shall electronically certify and submit DMRs together with SMRs using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. Electronic DMR submittal shall be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at this website: http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring

D. Other Reports

The following reports are required under Special Provisions (section VI.C), Attachment E, and the California Code of Regulations (CCR) and shall be submitted to the San Diego Water Board, signed and certified as required by the Standard Provisions (Attachment D):

Table E-12. Other Reports

Report	Location of requirement	Due Date
Brine Discharge Technology Empirical Study Work Plan	Section VI.C.2.a of Order	180 days following adoption of the Order
Report of Waste Discharge (for reissuance)	Section VI.A.5 of Order	180 days before the Order expiration date
Results of any TRE Evaluation	Section III.C.9.d of Attachment E	Within 30 days of completion of the TRE
Brine Discharge Technology Empirical Study Final Study Report	Section VI.C.2.i.d of Order	6 months following completion of the Brine Discharge Technology Empirical Study Work Plan
Climate Change Action Plan	Section VI.C.2.d of Order	3 years after the effective date of the Order
Updated Marine Life Mitigation Plan	Section VI.C.2.c of Order	12 months after the effective date of the Order
Final Compliance Schedule Report	Section VI.C.7.b of Order	30 days after achieving full compliance with the Ocean Plan and Water Code section 13142.5(b) determination
New Intake Structure Certification Report	Section VI.C.8.a of Order	July 30, 2022
New Intake Pumps Certification Report	Section VI.C.9.a of Order	December 31, 2019
Benthic Monitoring Work Plan	Section IV.C.4 of Attachment E	180 days after the effective date of the Order
Toxicity Reduction Evaluation (TRE) Work Plan	Section III.C.6 of Attachment E	90 days after the effective date of this Order

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II.B of the Order, the San Diego Water Board incorporates this Fact Sheet as findings of the San Diego Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "Not Applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "Not Applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	9 000001429	
Discharger	Poseidon Resources (Channelside) LP	
Name of Facility	Claude "Bud" Lewis Carlsbad Desalination Plant	
Facility Address	4590 Carlsbad Boulevard Carlsbad, CA 92008 San Diego County	
Facility Contact, Title and Phone	Peter M. MacLaggan, Vice President, (760) 655-3900	
Authorized Person to Sign and Submit Reports	Same as above	
Mailing Address	5780 Fleet Street, Suite 140 Carlsbad, CA 92008	
Billing Address	Same as mailing address	
Type of Facility	Water Supply (Desalination Plant)	
Major or Minor Facility	Major	
Threat to Water Quality	2[1]	
Complexity	B[2]	
Facility Permitted Flow at Monitoring Location M-001	**Wastewater**	**Maximum Daily Flowrate (MGD)[3]**
	Media Filtration Backwash	7
	Reverse Osmosis Concentrate	60
Facility Permitted/Design Flow at Monitoring Location M-002	330 MGD with existing intake pumps; 299 MGD with new intake pumps	
Watershed	Pacific Ocean	
Receiving Water	Pacific Ocean	
Receiving Water Type	Ocean waters	

1. As defined by California Code of Regulations, title 23, division 3, chapter 9, Waste Discharge Reports and Requirements, article 1 Fees –Threat to Water Quality Category 2 is "those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.
2. *Ibid*, Complexity Category B is defined to be "Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management unit.
3. Startup maintenance flows, product water, and off-spec water may be temporarily discharged to the Pacific Ocean during initial plant start-up, during or after plant maintenance, or at other times when the Facility is otherwise not delivering potable water to the regional water system. Temporarily discharging such water to the Pacific Ocean does not constitute a "bypass" as defined in

Attachment A, and Attachment D, Standard Provision I.G.1.a of this Order. All limits and requirements, including monitoring, specified in this Order remain applicable during these temporary discharges.

A. The Claude "Bud" Lewis Carlsbad Desalination Plant (Facility) is a seawater desalination plant located on the shores of Agua Hedionda Lagoon (also referred to as Lagoon) in Carlsbad, CA. The Facility currently produces up to 54 million gallons per day (MGD) of potable drinking water for the San Diego County Water Authority (SDCWA). Poseidon Resources (Channelside) LP's (Poseidon or Discharger) is the current owner and operator of the Facility. However, the SDCWA has the option to purchase the Facility from Poseidon starting December 23, 2025.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Facility was formerly co-located with the Encina Power Station, owned and operated by Cabrillo Power I LLC. The discharge from the Encina Power Station to the Pacific Ocean is regulated separately under Order No. R9-2006-0043, NPDES No. CA0001350.The Encina Power Station ceased power generating operations on December 11, 2018.

C. The Discharger was previously regulated by Order No. R9-2006-0065, as amended by Order Nos. R9-2009-0038 and R9-2010-0073, National Pollutant Discharge Elimination System (NPDES) Permit No. CA0109223, adopted on June 14, 2006 and expired on October 1, 2011. Regulations at title 40 of the Code of Federal Regulations (40 CFR) section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. In accordance with 40 CFR section 122.6 and the State's regulations at title 23, division 3, chapter 9, article 3, section 2235.4 of the California Code of Regulations (CCR), the term of the existing Order was administratively extended and continued in effect after the permit expiration date until the adoption of this Order (Order No. R9-2019-0003). Accordingly, Table 3 of this Order limits the duration of the discharge authorization. However, pursuant to CCR, title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the Order if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

D. The Discharger submitted an application for renewal of its NPDES permit and waste discharge requirements (WDRs), including a report of waste discharge (ROWD), on March 29, 2011 (2011 Permit Application). The 2011 Permit application was submitted to meet the requirement in Order No. R9-2006-0065 to file a ROWD not later than 180 days in advance of the expiration date. The ROWD proposed no changes in the Facility's operational conditions or discharge flows. At that time, the permit renewal was waiting for adoption of the Desalination Amendment to the Ocean Plan by the State Water Resources Control Board (State Water Board), as described in Section I.F of this Fact Sheet.

E. On May 6, 2015, the State Water Board adopted an amendment to the *Water Quality Control Plan for the Ocean Waters of California* (Ocean Plan) to address effects associated with the construction and operation of seawater desalination facilities (Desalination Amendment). This amendment, for the first time, provides a uniform, consistent process for permitting of seawater desalination facilities statewide. The Office of Administrative Law approved the Desalination Amendment on January 28, 2016. The U.S. Environmental Protection Agency (U.S. EPA) approved the portions of the Desalination Amendment that implement federal law on April 7, 2016 making the Desalination Amendment in full effect.

F. The Discharger filed an amended permit application including an amended ROWD, and a request for a California Water Code (Water Code or CWC) section 13142.5(b) determination for permanent stand-alone operations on September 4, 2015 (2015 ROWD). The San Diego

Water Board deemed the 2015 ROWD to be complete for purposes of preparing tentative Waste Discharge Requirements/NPDES permit. However, supplemental information to inform the San Diego Water Board's Water Code section 13142.5(b) determination was provided between August 18, 2016 up to October 22, 2018.

G. Regulations at 40 CFR section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order limits the duration of the discharge authorization. However, pursuant to CCR, title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the Order if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

H. Water Code section 13142.5(b) requires that for each new or expanded coastal powerplant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life. Section III.M of the Ocean Plan provides the implementation provisions for desalination facilities to comply with Water Code section 13142.5(b).

I. **Co-located and Temporary Stand-Alone Operations (2009 Determination) –** On May 13, 2009, the San Diego Water Board adopted Order No. R9-2009-0038, finding that during co-located operations with the Encina Power Station, the Discharger's implementation of the approved *Flow, Entrainment, and Impingement Minimization Plan* (see section VI.C.2.c of this Order) will ensure the best available site, design, technology, and mitigation measures feasible to minimize intake and mortality of all forms of marine life. Order No. R9-2009-0038 did not address the Facility operating under stand-alone conditions when the Encina Power Station permanently ceases operation. The 2009 Determination by the San Diego Water Board remains applicable until such time as the San Diego Water Board takes a final action on the ROWD.

J. **Stand-Alone Operations (2019 Determination) -** The San Diego Water Board has analyzed separately as independent considerations, and in combination, a range of intake design alternatives and brine discharge alternatives and has determined that the Facility will use the best available combination of site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life. This determination is limited to stand-alone operation of the Facility, with a compliance schedule and interim measures to minimize mortality to all forms of marine life. Attachments H.1 and H.2 to this Order (collectively referred to as Attachment H) summarizes the San Diego Water Board's findings in support of its Water Code section 13142.5(b) determination.

K. **Future Modified Operations -** Any future expansions to the Facility as described in the Ocean Plan section III.M.1.b(2) will require a new Water Code section 13142.5(b) determination.

II. FACILITY DESCRIPTION

A. Description

The Facility is located on a 5.7-acre parcel of land within the site of the former Encina Power Station. The Discharger has a long-term renewable lease and easement agreement with Cabrillo Power I LLC (the owner and operator of the former Encina Power Station) for the desalination plant's site.

The potable water production processes at the Facility includes the addition of ferric sulfate and polymer, granular media filtration, reverse osmosis (RO) desalination, and product water

stabilization. Ferric sulfate and polymer are added to the influent seawater to assist with the removal of fine particulates by forming floc which is then removed in the granular media filter. The ferric sulfate and polymer are removed by backwashing the granular media filter and is then collected in a sedimentation basin for removal as waste sludge which is disposed of at an authorized landfill. The clarified filter backwash from the backwash pit is discharged to the Pacific Ocean via the common outfall line.

Startup maintenance flows, product water, and off-spec water may be temporarily discharged in the Pacific Ocean during initial plant start-up, during or after plant maintenance, or other times when the Facility is not delivering potable water to the regional water system. To the maximum extent practicable, these flows must be recycled to the Facility headworks for potable water production. During such temporary periods, the total maximum allowable discharge flowrate shall not exceed 299 MGD, the maximum allowable intake flowrate. Temporarily discharging such water to the Pacific Ocean does not constitute a "bypass" as defined in Attachments A and D of this Order. All limits and requirements, including monitoring, specified in this Order remain applicable during these temporary discharges.

The Facility was co-located with the Encina Power Station. The Encina Power Station ceased power generating operations on December 11, 2018. At that time, the Facility initiated interim stand-alone operations, including drawing in seawater for desalination and flow augmentation using the existing intake structure formerly operated by Encina Power Station. This Order includes a compliance schedule in Provision section VI.C.7.a, Table 7 of this Order to construct and operate a new intake structure in compliance with the Ocean Plan and the Water Code section 13142.5(b) and the requirements of this Order. Until the new intake structure is operational, the Discharger is required under Provision section VI.C.7.c of this Order to implement interim measures to minimize the mortality of all forms of marine life.

The Discharger has determined that the Facility with minor modifications would be capable of achieving a daily maximum potable water production capacity of up to 60 MGD. To reflect conditions under which this daily maximum potable water production is achieved, the Discharger has requested that the requirements of this Order pertaining to permanent stand-alone operations provide for the following:

- An average annual potable water production of up to 60 MGD;
- An average annual RO concentrate discharge of up to 60 MGD;
- Granular media filter backwash of up to 7 MGD, with the option to recycle backwash flows into the Facility's pretreatment process in lieu of discharging the backwash flow to the ocean;
- The intake and discharge of bypassed Lagoon water (flow augmentation) of up to 196 MGD.
- A total discharge for the combined backwash water, reverse osmosis concentrate, and flow augmentation water of up to 249 MGD.

Significant changes to Facility operations since Encina Power Station ceased power generating operations include:

- The Discharger proposes to install a new intake structure to withdraw up to 299 MGD of seawater directly from the Agua Hedionda Lagoon.
- The new intake will include 1-millimeter screens that are hydraulically designed to ensure that through-screen velocities are less than 0.5 foot per second, in compliance with chapter III.M.2.d.(1)(c) of the Ocean Plan.

- Diverted Lagoon water, rather than wastewater effluent from Encina Power Station, will be used to dilute the effluent from the Facility to ensure that receiving water salinity concentrations are less than 2 ppt above ambient at the edge of the Brine Mixing Zone (as defined in Attachment A) in the Pacific Ocean.

The maximum observed concentrations of various parameters in the combined Facility's historical effluent data are summarized in Tables F-2 through F-4 of this Fact Sheet. In the 2015 ROWD, the Discharger requested that this Order provide for up to 1 MGD of dewatering wastewater during the construction of the intake/discharge structures needed for transition of the Facility to stand-alone operations. This Order does not include the dewatering wastewater discharge because some of the proposed intake structures may not require groundwater dewatering during construction. In the event that dewatering is required for construction of the new intake structure, the Discharger will be required to enroll in Order No. R9-2015-0013, *General Waste Discharge Requirements for Groundwater Extraction Discharges to Surface Waters Within the San Diego Region,* and any reissuance.

Maintenance of the New Intake Structure

Maintenance requirements of the new intake structure will include periodic cleaning of the new screen system and pipeline laterals conducted in compliance with the Ocean Plan's water quality objectives and applicable requirements of this Order. In-water maintenance activities described below may trigger the need for the Discharger to apply for and obtain additional permit coverage.

The screen system will be cleaned in place by divers. If the active rotating screens (motorized) are installed, they would be equipped with a brushing mechanism that would require less biofouling cleaning by divers that would be based on a floating barge. Visual inspections would occur periodically using a submersible camera and/or diver(s) to determine cleaning requirements. An entire pipeline would be isolated to clean all screens along a pipeline at one time. The screen exterior and interior would be cleaned as follows:

1. Exterior - Divers would use a combination of manual cleaning with brushes and hydro-blasting using pressurized water spray nozzles on the external surfaces of the screens. The seawater used for hydro-blasting would pass through one of the adjacent screens prior to use. Accumulated debris, silts, and marine sediments near the screens within the footprint of the intake structure would be removed periodically via suction pumping from a maintenance barge. The material would be discharged to a tank mounted on the barge that would filter the material from the water using siltation curtains before returning the water to the lagoon or the material would be pumped to the discharge pond and would pass through siltation curtains before exiting to the ocean. Alternatively, if permitted, material would be pumped to Fishing Beach where sediment would settle out and water would be returned to the lagoon. In this scenario, accumulated sediment would be spread out on Fishing Beach within an existing easement granted to the Discharger for this purpose or hauled off-site for disposal.

2. Interior - Both manual cleaning and hydro-blasting would be used in the internal surfaces of the screens. Divers would enter the screen via hatches (likely at one of the endcaps). Any biofouling debris that has released from within the screen would be removed using a trash pump. The trash pump would discharge to a tank mounted on the barge that would filter the biofouling debris from the water using siltation curtains before returning the water to the lagoon; or the water and debris would be pumped to the discharge pond and would pass through siltation curtains before exiting into the ocean. Solids collected would then be dewatered and hauled offsite for disposal.

Screen cleaning would occur as frequently as necessary to ensure the screening system is able to ensure reliable performance of the Facility. Under typical passive screen operating conditions, it is estimated that the screens would be cleaned once a month (12 cleanings annually) and likely less frequently if the active screens are installed. During challenging conditions such as winter storm events or algal blooms, more frequent cleaning may be required to manage debris that may collect on or near the screens.

An airburst system may be used to attempt to dislodge debris that may collect on screens. If active screens are utilized (to be determined after the demonstration project), the airburst system may not be needed.

A floating debris boom/curtain around the intake screens would block floating debris from entering the screening area. The floating debris boom extends from the surface three to 5 feet down into the water. The debris boom would be a solid barrier rather than a mesh to avoid marine life impacts. The debris boom would act as a stand-off zone to prevent the public from entering the screened area where airbursting may occur and where screens could be damaged by anchors. Portions of the floating debris boom would be adjustable to allow for surface maintenance vessel entrance/exit to the protected area. The boom would be maintained by manually removing floating debris that may accumulate.

Maintenance of the intake laterals would involve physical removal of biofouling debris by pipe pigging. Pigging would be conducted as needed to ensure the reliable performance of the Facility. The pig mechanism would be launched from the Lagoon end of the pipeline and would push the biofouling debris to the shore. Debris removed by pigging and associated flushing water would be directed to the discharge pond for settling. Debris removal operations would be designed to comply with the California Ocean Plan Water Quality Objectives.

B. Discharge Points and Receiving Waters

Co-located and Temporary Stand-alone Operations

Under the previous co-located and temporary stand-alone operations, the Facility discharged up to 54 MGD of the reverse osmosis concentrate brine and filter backwash to the Encina Power Station discharge channel. The Facility's effluent then mixed with and was diluted by the Encina Power Station's effluent in the discharge channel and discharge pond. The volume of the Encina Power Station's effluent averaged approximately 433 MGD in 2015, with the 30-day average flow ranging between 149 MGD and 645 MGD. Effluent from the Facility was monitored at Monitoring Location M-001 and the comingled effluent from the Facility and the Encina Power Station was monitored at Monitoring Location M-002 at the discharge pond.

Order No. R9-2006-0043, the current NPDES permit for the Encina Power Station, assigned an initial dilution ratio of 15.5:1 for the existing Encina Power Station discharge in the Pacific Ocean. This value was based on modeling at the Encina Power Station, considering average day conditions from 1980 through 2000.

Stand-alone Operations

The Encina Power Station ceased power generating operations on December 11, 2018. At that time, the Facility began stand-alone operations, including drawing in seawater for desalination and flow augmentation dilution water.

The Discharger submitted a discharge study to evaluate dilution as follows:

- In September 2015, the Discharger submitted Appendix C of the 2015 ROWD. To evaluate dilution at a 200-meter radius from Discharge Point No. 001. The San

Diego Water Board requested the Discharger to revise the model to conform with the Ocean Plan requirements which do not take into consideration mixing in the ocean from current and wind.

- On July 12, 2016, the Discharger submitted Appendix BB of the 2015 ROWD to include an evaluation of "initial dilution" for pollutants specified in Table 1 of the Ocean Plan
- On February 21, 2017, the Discharger submitted Appendix VV of the 2015 ROWD to align with the Ocean Plan and to propose a zone of initial dilution in the receiving waters at 304.8 meters (1,000 feet) from Discharge Point No. 001.

Using a combination of CORMIX 5.0 and *COSMOS.FlowWorks* modeling, Appendix VV of the 2015 ROWD evaluated initial dilution for the Facility's effluent discharged at a maximum flowrate of 238 MGD. The model used the most conservative ambient monthly mean temperature and salinity profiles (from September 2008): the ocean water temperature was assumed to be within 2 degrees Celsius of ambient with a salinity of 42.0 ppt, which is the salinity required (at M-002) for the effluent to meet acute toxicity threshold. The model also assumed no mixing due to the action of ocean currents, waves, tides, or wind, consistent with the Ocean Plan requirements.

Based on the model, the effluent discharge plume will be negatively buoyant (denser than seawater) and will flow along the ocean bottom downslope and off-shore towards the west-northwest. When the brine plume becomes stationary, at a distance of approximately 1,851 meters from Discharge Point No. 001, the model predicts a difference in the salinity of the plume and the ambient ocean water to be less than 1 percent.

The Ocean Plan defines the zone of initial dilution as the zone in which the process of initial dilution is completed; and since dilution ceases to increase significantly beyond 1,851 meters, this distance marks the seaward limit of the zone of initial dilution. The Discharger has requested that the zone of initial dilution for this Order be set at 304.8 meters (1,000 feet), consistent with the prior Order, Order No. R9-2006-0065. At 304.8 meters (1,000 feet), the Discharger has proposed a dilution ratio of 21.83 parts sea water to 1-part undiluted brine when also considering dilution from flow-augmentation water. The dilution ratio was derived as follows:

- At 304.8 meters (1,000 feet), 1 part of diluted effluent (comprised of undiluted effluent, reverse osmosis brine, mixed with flow augmentation dilution water) is diluted by 4.75 parts ocean water, resulting in a total of 5.75 parts water.
- Flow augmentation provides a dilution of 1-part undiluted effluent (60 MGD) to 2.97 parts flow augmentation dilution water (178 MGD), resulting in a total of 3.97 parts water.
- The combined dilution from the ocean water (5.75) and the flow augmentation water (3.97) is calculated by multiplying their individual dilution factors (5.75 x 3.97) for a result of 22.83.
- The final dilution ratio is thus 1 part of undiluted effluent to 21.83 parts seawater (comprised of ocean water and flow augmentation water).

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in Order No. R9-2006-0065 for discharges from the Facility are summarized in the following table.

Table F-2. Historic Facility Effluent Limitations and Monitoring Data

Parameter	Units[1]	Effluent Limitations[1]			Monitoring Data (From January 2015[2] to January 2017)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Maximum Daily Discharge
Total Suspended Solids (TSS)	mg/L	60	--	--	43	--	--
pH	standard units	--	--	6.0-9.0[3]	--	--	6.82-8.17[3]
Oil and Grease	mg/L	25	40	75[3]	5.9	8.4	8.6[3]
Settleable Solids	ml/L	1.0	1.5	3.0[3]	0.2	0.25	0.4[3]
Turbidity	NTU	75	100	225[3]	4.23	12	19[3]
Chronic Toxicity	TUc	--	--	16.5	--	--	>40

1 See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2 The Facility began discharging wastewater in January of 2015.
3 Instantaneous minimum and instantaneous maximum values.

Table F-3. Historic Combined Facility and Encina Power Station Effluent Limitations at M-002

Parameter	Units[1]	Effluent Limitations		Monitoring Data (January 2015 to January 2017)
		Average Daily	Average Hourly	Highest Detected Discharge
Total Dissolved Solids (as Salinity)	ppt	40	44	40

1 Encina Power Station operations do not appreciably increase the salinity of the intake water, and any violation of the combined Encina Power Station and Facility salinity limits shown above are attributed to the Facility.

Table F-4. Historic Performance Goals

Parameter	Unit[1]	Historic Performance Goals[1,2]				Monitoring Data (January 2015 to January 2017)
		6-Month Median	Maximum Daily	Instantaneous Maximum	30-Day Average	Highest Detected Discharge
BASED ON OCEAN PLAN OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE						
Arsenic, Total Recoverable	µg/l	8.55E+01	4.81E+02	1.27E+03	--	3.3
Cadmium, Total Recoverable	µg/l	1.65E+01	6.60E+01	1.65E+02	--	0.044
Chromium VI[3]	µg/l	3.30E+01	1.32E+02	3.30E+02	--	<0.0048
Copper, Total Recoverable	µg/l	1.85E+01	1.67E+02	4.64E+02	--	2.7
Lead, Total Recoverable	µg/l	3.30E+01	1.32E+02	3.30E+02	--	0.91
Mercury, Total Recoverable[4]	µg/l	6.52E-01	2.63E+00	6.59E+00	--	0.52

Parameter	Unit[1]	Historic Performance Goals[1,2]				Monitoring Data (January 2015 to January 2017)
		6-Month Median	Maximum Daily	Instantaneous Maximum	30-Day Average	Highest Detected Discharge
Nickel, Total Recoverable	µg/l	8.25E+01	3.30E+02	8.25E+02	--	8.9
Selenium, Total Recoverable	µg/l	2.47E+02	9.90E+02	2.47E+03	--	2.3
Silver, Total Recoverable	µg/l	9.07E+00	4.37E+01	1.13E+02	--	0.033
Zinc, Total Recoverable	µg/l	2.06E+02	1.20E+03	3.18E+03	--	78
Cyanide, Total[5]	µg/l	1.65E+01	6.60E+01	1.65E+02	--	<0.01
Total Chlorine Residual	µg/l	3.30E+01	1.32E+02	9.90E+02	--	NA
Ammonia (expressed as nitrogen)	µg/l	9.90E+03	3.96E+04	9.90E+04	--	520
Phenolic Compounds (non-chlorinated)	µg/l	4.95E+02	1.98E+03	4.95E+03	--	<0.57
Chlorinated Phenolics	µg/l	1.65E+01	6.60E+01	1.65E+02	--	<0.77
Endosulfan	µg/l	1.48E-01	2.97E-01	4.46E-01	--	<0.003
Endrin	µg/l	3.30E-02	6.60E-02	9.90E-02	--	<0.001
HCH	µg/l	6.60E-02	1.32E-01	1.98E-01	--	<0.004
Radioactivity	pCi/l	Not to exceed limits specified in title 17, division 1, chapter 5, subchapter 4, group 3, article 3, section 30253 of the CCR, Reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.				343
BASED ON OCEAN PLAN OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – NONCARCINOGENS						
Acrolein	µg/l	--	--	--	3.63E+03	<0.44
Antimony	µg/l	--	--	--	1.98E+04	0.88
Bis(2-chloroethoxy) Methane	µg/l	--	--	--	7.26E+01	<0.16
Bis(2-chloroisopropyl) ether	µg/l	--	--	--	1.98E+04	<0.16
Chlorobenzene	µg/l	--	--	--	9.41E+03	<0.21
Chromium (III)	µg/l	--	--	--	3.14E+06	5.3
Di-n-butyl Phthalate	µg/l	--	--	--	5.78E+04	<0.12
Dichlorobenzenes	µg/l	--	--	--	8.42E+04	<0.37
Diethyl Phthalate	µg/l	--	--	--	5.45E+05	<0.14
Dimethyl Phthalate	µg/l	--	--	--	1.35E+07	<0.15
4,6-dinitro-2-methylphenol	µg/l	--	--	--	3.63E+03	<0.12
2,4-dinitrophenol	µg/l	--	--	--	6.60E+02	<0.14
Ethylbenzene	µg/l	--	--	--	6.77E+04	<0.17
Fluoranthene	µg/l	--	--	--	2.48E+02	<0.13
Hexachloro-cyclopentadiene	µg/l	--	--	--	9.57E+02	<0.1
Nitrobenzene	µg/l	--	--	--	8.09E+01	<0.36

Parameter	Unit[1]	Historic Performance Goals[1,2]				Monitoring Data (January 2015 to January 2017)
		6-Month Median	Maximum Daily	Instantaneous Maximum	30-Day Average	Highest Detected Discharge
Thallium	µg/l	--	--	--	3.30E+01	1.2
Toluene	µg/l	--	--	--	1.40E+06	<0.22
Tributyltin	µg/l	--	--	--	2.31E-02	0.0019
1,1,1-trichloroethane	µg/l	--	--	--	8.91E+06	<0.38
BASED ON OCEAN PLAN OBJECTIVES FOR PROTECTION OF HUMAN HEALTH - CARCINOGENS						
Acrylonitrile	µg/l	--	--	--	1.65E+00	<0.27
Aldrin	µg/l	--	--	--	3.63E-04	<0.001
Benzene	µg/l	--	--	--	9.74E+01	<0.23
Benzidine	µg/l	--	--	--	1.14E-03	<0.53
Beryllium	µg/l	--	--	--	5.45E-01	<0.039
Bis(2-chloroethyl) Ether	µg/l	--	--	--	7.43E-01	<0.14
Bis(2-ethlyhexyl) Phthalate	µg/l	--	--	--	5.78E+01	36
Carbon Tetrachloride	µg/l	--	--	--	1.49E+01	<0.32
Chlorodane	µg/l	--	--	--	3.80E-04	<0.01
Chlorodibromomethane	µg/l	--	--	--	1.42E+02	<0.29
Chloroform	µg/l	--	--	--	2.15E+03	<0.25
DDT	µg/l	--	--	--	2.81E-03	<0.0038
1,4-dichlorobenzene	µg/l	--	--	--	2.97E+02	<0.15
3,3'-dichlorobenzidine	µg/l	--	--	--	1.34E-01	<0.9
1,2-dichloroethane	µg/l	--	--	--	4.62E+02	<0.24
1,1-dichloroethylene	µg/l	--	--	--	1.49E+01	<0.34
Dichlorobromomethane	µg/l	--	--	--	1.02E+02	<0.28
Dichloromethane	µg/l	--	--	--	7.43E+03	<0.25
1,3-dichloropropene	µg/l	--	--	--	1.47E+02	<0.22
Dieldrin	µg/l	--	--	--	6.60E-04	<0.001
2,4-dinitrotoluene	µg/l	--	--	--	4.29E+01	<0.16
1,2-diphenylhydrazine	µg/l	--	--	--	2.64E+00	<0.25
Halomethanes	µg/l	--	--	--	2.15E+03	<1.05
Heptachlor	µg/l	--	--	--	8.25E-04	<0.0017
Heptachlor Epoxide	µg/l	--	--	--	3.30E-04	<0.001
Hexachlorobenzene	µg/l	--	--	--	3.47E-03	<0.008
Hexachlorobutadiene	µg/l	--	--	--	2.31E+02	<0.14
Hexachloroethane	µg/l	--	--	--	4.13E+01	<0.15
Isophorone	µg/l	--	--	--	1.20E+04	<0.2
N-nitrosodimethylamine	µg/l	--	--	--	1.20E+02	<0.14
N-nitrosodi-N-propylamine	µg/l	--	--	--	6.27E+00	<0.21
N-nitrosodiphenylamine	µg/l	--	--	--	4.13E+01	<0.19

Parameter	Unit[1]	Historic Performance Goals[1,2]				Monitoring Data (January 2015 to January 2017)
		6-Month Median	Maximum Daily	Instantaneous Maximum	30-Day Average	Highest Detected Discharge
PAHs	µg/l	--	--	--	1.45E-01	<2
PCBs	µg/l	--	--	--	3.14E-04	<0.42
TCDD equivalents	µg/l	--	--	--	6.44E-08	4.34E-06
1,1,2,2-tetrachloroethane	µg/l	--	--	--	3.80E+01	<0.18
Tetrachloroethylene	µg/l	--	--	--	3.30E+01	<0.27
Toxaphene	µg/l	--	--	--	3.47E-03	<0.12
Trichloroethylene	µg/l	--	--	--	4.46E+02	<0.35
1,1,2-trichloroethane	µg/l	--	--	--	1.55E+02	<0.34
2,4,6-trichlorophenol	µg/l	--	--	--	4.79E+00	<0.13
Vinyl Chloride	µg/l	--	--	--	5.94E+02	<0.33

1 See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2 Scientific "E" notation is used to express certain values. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1×10^{-2} or 0.061, 6.1E+02 represents 6.1×10^{2} or 610, and 6.1E+00 represents 6.1×10^{0} or 6.1.
3 Discharger may, at its option, meet this limitation (or apply this performance goal) as a total chromium limitation (or performance goal).
4 U.S. EPA Method 1631E, with a quantitation level of 0.5 ng/L, shall be used to analyze total mercury.
5 If a Discharger can demonstrate to the satisfaction of the San Diego Water Board (subject to U.S. EPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met by (or performance goals may be evaluated with) the combined measurement of free cyanide, simple alkali metals cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in title 40 CFR part 136, as revised May 14, 1999.

1. Salinity and Toxicity Studies

The Discharger was required to conduct two salinity-related acute toxicity studies to evaluate compliance with the acute toxicity performance goal, to confirm the results of prior studies on which effluent salinity limitations had been based, and to identify the maximum amount of salinity that can be discharged without causing acute toxicity.

The Discharger submitted an Acute Toxicity Study as Appendix G to the 2015 ROWD. The study focused on two species, the Pacific topsmelt *(Atherinops affinis)* and the mysid shrimp *(Americamysis bahia)*, during two rounds of testing performed in February and March of 2015. The test found no observed toxicity in Pacific topsmelt at 44 ppt in either test. Toxicity was observed using the Test of Significant Toxicity for mysid shrimp at 44 ppt in the test initiated in February 2015, and resulted in a no observable effect concentration (NOEC) of 42.0 ppt. No statistical effects were observed in the March 2015 test for mysid shrimp, and a NOEC at 44 ppt was identified.

The Discharger submitted a Chronic Toxicity Study as Appendix H to the 2015 ROWD. The test evaluated salinity tolerance of multiple species. In tests summarized in the study, no statistical effects were observed in any concentration of Pacific topsmelt *(Atherinops affinis)*, giant kelp *(Macrocystis pyrifera)*, purple urchin *(Strongylocentrotus purpuratus)* or sand dollar *(Dendraster excentricus)* fertilization, or the sand dollar larval development tests, resulting in a Lowest Observed Effect Concentration of >38.5 ppt. The larval endpoints for purple urchins and abalone *(Haliotis rufescens)* were the most

sensitive to increased salinity during the testing with NOECs identified at 36.5 ppt and 36.0 ppt, respectively.

D. Compliance Summary

The following summarizes the compliance history for the period of September 2015 through January 2017:

Table F-5. Summary of Compliance History

Date	Violation type	Description
9/17/2015	Unauthorized Discharge	On September 17, 2015, the rinse pit overflowed during start-up operations and discharged to the storm drain system into Agua Hedionda Lagoon.
10/28/2015	Deficient Monitoring	The 3rd Quarter 2015 monitoring report used Minimum Levels (MLs) that were not approved by the Executive Officer and that did not meet the standards in Appendix II of the 2005 Ocean Plan.
11/13/2015	Receiving Water Limitation Exceedance	On November 13, 2015, the effluent discharge from the Facility caused a discoloration of the Pacific Ocean in the vicinity of the outfall.
1/27/2016	Effluent Limitation Exceedance	4th Quarter 2015 monitoring reports used MLs that were not approved by the Executive Officer and that did not meet the standards in Appendix II of the 2005 Ocean Plan.
3/24/2016	Unauthorized Discharge	On March 24, 2016, the rinse pit overflowed during start-up operations and discharged to the storm drain system into Agua Hedionda lagoon.

On April 7, 2016, the San Diego Water Board issued Notice of Violation No. R9-2016-0112 for the aforementioned violations of Order No. R9-2006-0065 through March 24, 2016.

The Discharger has revised their operating protocol and system control computer program to prevent rinse pit overflows. The Discharger changed their contract laboratory to a laboratory that can achieve the required MLs. The cause of the November 13, 2015 receiving water limitation exceedance was due to an unanticipated washout of solids accumulation in a pipeline. The Discharger constructed a new pipeline within the Facility to prevent an accumulation of solids in the pipelines.

Additionally, between December 2015 through January 2018, the Discharger reported 61 exceedances of the chronic toxicity maximum daily effluent limitation of 16.5 TUc at monitoring location M-001 of the undiluted brine. In response to the effluent limitation exceedances for chronic toxicity, the Discharger reported that the violations are an artifact of the chronic toxicity effluent limitation in Order No. R9-2006-0065 not accounting for the flow-augmentation dilution water provided by the Encina Power Station. Monitoring samples that account for the flow-augmentation dilution water provided by the Encina Power Station did meet the chronic toxicity effluent limitation prior to discharging to the Pacific Ocean, and also passed the TST statistical approach for determining compliance with chronic toxicity monitoring included in this Order. Nevertheless, the Discharger conducted an extensive Toxicity Identification Evaluation (TIE), and the results were inconclusive as to the source and cause of toxicity.

E. Planned Changes

See section II.A of this Fact Sheet for a description of planned changes to the Facility.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order serves as WDRs pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (U.S. EPA) and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this Facility to surface waters of the U.S at the discharge location described in Table 2 of the Order, subject to the WDRs in this Order. This Order also includes the San Diego Water Board's Water Code section 13142.5(b) determination.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of chapter 3 of the CEQA, (commencing with section 21100, et. seq.) of division 13 of the Public Resources Code. However, compliance with CEQA is required for those provisions in this Order that are based on State law only. This Order's determination that the Facility complies with Water Code section 13142.5(b) is a determination based on consideration of State law only and is subject to CEQA compliance. In August 2016, the SDCWA certified the *Final Supplement to the Precise Development Plan and Desalination Plant Project Final Environmental Impact Report (EIR 03-05, State Clearinghouse No. 2004041081)* (Final SEIR). In January 2019, the SDCWA approved the Sixth Addendum to the Final EIR. The San Diego Water Board independently considered the environmental effects of the project as described in the 2006 EIR, the 2016 Supplemental EIR, and addendums.

C. State and Federal Laws, Regulations, Policies, and Plans

1. **Water Quality Control Plan.** The San Diego Water Board adopted the *Water Quality Control Plan for the San Diego Basin* (Basin Plan) on September 8, 1994 that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Subsequent revisions to the Basin Plan have also been adopted by the San Diego Water Board and approved by the State Water Resources Control Board (State Water Board). Beneficial uses applicable to the Pacific Ocean specified in the Basin Plan are as follows:

Table F-6. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Pacific Ocean	Industrial service supply; navigation; contact water recreation; non-contact water recreation; commercial and sport fishing; preservation of biological habitats of special significance; wildlife habitat; rare, threatened, or endangered species; marine habitat; aquaculture; migration of aquatic organisms; spawning, reproduction, and/or early development; and shellfish harvesting.

To protect the beneficial uses, the Basin Plan establishes water quality objectives and a program of implementation. Requirements of this Order implement the Basin Plan.

2. **California Ocean Plan.** The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (Ocean Plan) in 1972 and has made subsequent amendments, most recently on August 7, 2018. The State Water Board adopted Chapter III.M, regarding desalination facilities, on May 6, 2015, and it became effective on January 28, 2016. Chapter III.M of the Ocean Plan provides the implementation provisions for desalination facilities to comply with Water Code section 13142.5(b). The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. The Ocean Plan identifies beneficial uses of ocean waters of the State to be protected as summarized below:

Table F-7. Ocean Plan Beneficial Uses

Discharge Point	Receiving Water	Beneficial Uses
001	Pacific Ocean	Industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish spawning and shellfish harvesting

To protect the beneficial uses, the Ocean Plan establishes water quality objectives and a program of implementation. Requirements of this Order implement the Ocean Plan.

3. **Thermal Plan.** The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972 and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters. Requirements of this Order implement the Thermal Plan.

4. **Antidegradation Policy.** Federal regulations at 40 CFR section 131.12 require that the State water quality standards include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in Resolution No. 68-16 (*Statement of Policy with Respect to Maintaining High Quality of Waters in California*). Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provisions of 40 CFR section 131.12 and Resolution No. 68-16.

5. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

6. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S. Code Annotated sections 1531 to 1544). This Order requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the State. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

D. Impaired Water Bodies on the CWA Section 303(d) List

In July 2015, U.S. EPA approved the list of impaired water bodies, prepared by the State Water Board pursuant to section 303(d) of the CWA, which are not expected to meet applicable water quality standards after implementation of technology-based effluent limitations (TBELs) for point sources.

Currently, no impaired waterbodies are on the current CWA section 303(d) List, approved by the San Diego Water Board on October 12, 2016, and no total maximum daily loads (TMDL) are effective for the Pacific Ocean near the Facility.

E. Other Plans, Policies, and Regulations - Water Code Section 13142.5(b) Determination

Water Code section 13142.5(b) requires that for each new or expanded coastal power plant or other industrial installation using seawater for cooling, heating, or industrial processing, best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life. Chapter III.M of the Ocean Plan provides the implementation provisions for desalination facilities to comply with Water Code section 13142.5(b).

Co-located and Temporary Stand-alone Operations (2009 Water Code section 13142.5(b) Determination)

On May 13, 2009, the San Diego Water Board adopted Order No. R9-2009-0038, finding that during co-located operations with the Encina Power Station, the Discharger's implementation of the approved *Flow, Entrainment, and Impingement Minimization Plan* would ensure the best available site, design, technology, and mitigation measures feasible to minimize intake and mortality of all forms of marine life. Order No. R9-2009-0038 did not address the Facility operating under stand-alone conditions when the Encina Power Station permanently ceases operation.

Stand-alone Operations (2019 Water Code section 13142.5(b) Determination)

The San Diego Water Board has analyzed separately as independent considerations, and in combination, a range of intake design alternatives proposed by the Discharger and has determined that the Facility will use the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life. Attachment H to this Order summarize the considerations and basis for this Water Code section 13142.5(b) determination. Section VI.C.10.a of the Order includes a compliance schedule in Table 7, pursuant to chapter III.M.2.a(5)(b) of the Ocean Plan. This compliance schedule provides the Discharger the minimum time necessary to construct and operate a new intake structure in compliance with the Ocean Plan, Water Code section 13142.5(b), and the requirements of this Order. Until a new intake structure is constructed, the Discharger is required to implement interim measures under Provision section VI.C.7.c of this Order to minimize the intake and mortality of all forms of marine life.

Future Modified Operations

Any proposed changes in the design or operation of the Facility that could increase the intake or mortality of all forms of marine life beyond that which is approved by this Order would meet the definition of an expanded facility within the meaning of the Ocean Plan. See, Chapter III.M.1(b)(2). Any such expansion will require a new Water Code section 13142.5(b) determination in accordance with the Ocean Plan.

IV. RATIONALE FOR EFFLUENT LIMITATIONS, INTAKE SPECIFICATIONS, AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the U.S. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations (CFR): 40 CFR section 122.44(a) requires that permits include applicable technology-based limitations and standards (TBELs); and 40 CFR section 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

This Order retains discharge prohibitions from Order No. R9-2006-0065:

1. Prohibitions III.A and III.D have been carried over from the requirements in Order No. R9-2006-0065. These prohibitions are based on 40 CFR section 122.21(a), duty to apply, and Water Code section 13260, which requires filing a ROWD before discharges can occur. Discharges not described in the 2015 ROWD, and subsequently also not regulated in this Order, are prohibited.
2. Prohibitions III.B and III.C are based on the requirements of the Ocean Plan and the Basin Plan, respectively.

B. Technology-Based Effluent Limitations (TBELs)

1. Scope and Authority

CWA section 301(b) and implementing U.S. EPA permit regulations at 40 CFR section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR section 125.3. Discharges from the Facility must also meet TBELs based on Table 2 of the Ocean Plan.

The CWA requires that TBELs be established based on several levels of controls:

i. Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

ii. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

iii. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), fecal coliform, pH (Hydrogen ion concentration), and oil and grease. The BCT standard is established after considering a two-part reasonableness test. The first test compares the relationship between the costs of attaining a reduction in effluent discharge and the resulting benefits. The second test examines the cost and level of reduction of pollutants from the discharge from publicly owned treatment works to the cost and